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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,222	08/20/2001	Thomas Engel	GK-ZEI-3126/	6741

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REED SMITH, LLP
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EXAMINER	
NGUYEN, THONG Q	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/856,222	ENGEL ET AL.	
	Examiner	Art Unit	
	Dung T. Nguyen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-11 and 13-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-11 and 13-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. The present Office action is made in response to the amendment (Paper No. 14) filed on 10/02/2003. It is noted that in the mentioned amendment, applicant has amended claims 6-7, 9-10, and 13-15 and added a new claim, i.e., claim 16, into the application. The pending claims 6-11 and 13-16 are examined in this Office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 is rejected under 35 USC 112, second paragraph because it is unclear about the feature relating to the speed of the diffuser disk. In other words, the speed or the magnitude of rotation defined by the so-called "one grain size of the diffusion disk" (line 5) or "the resolution limit of a holographically generated structure between two laser pulses" (lines 5-6) is indefinite.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 6-7, 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegen (U.S. Patent No. 4,869,593, of record) in view of Partlo et al (U.S. Patent No. 5,233,460) and Emery et al (U.S. Patent No. 5,737,072).

Biegen discloses an inspecting system for inspecting a test surface. The inspecting system as described in columns 2-5 comprises a laser module (10), a microscope, a rotating diffusing system (18, 20) disposed after the laser module for providing a homogenization of the illumination, an optical system for receiving the laser and for guiding laser beam to a test surface (48), an imaging system (56, 58) for receiving light from the test surface and then transmitting such light to a display system having a monitor (72), and a controlling system for controlling the operation of the inspecting system. Regard to the type of light used in the inspecting system, while Biegen discloses the use of spatially coherent or incoherent light (see abstract and column 4, for example), he does not clearly state that the light used is a pulsed laser in an UV range. However, the use of an optical system having laser pulsed in the range of ultraviolet and two counter-rotating diffusers for the purpose of reduction of speckle in a coherent-source system is known and/or suggested to one skilled in the art as can be seen in the system provided by Partlo et al. See columns 1-4, in particular, column 4, lines 26-41. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the inspecting system provided by Biegen by using a pulsed laser in the range of ultraviolet bandwidth for inspecting an object surface and two counter-rotating diffusers as suggested by Partlo et al for the

purpose of increasing the homogenization of illuminating light on an object surface so that an image with better quality is provided to an observer.

While Partlo et al does not disclose that their device for reduction of speckle in coherent laser pulses can be used in an inspection system; however, the use of a laser source for either an inspection system or a lithographic system is known to one skilled in the art as suggested by Emery et al. In particular, Emery et al disclose an automated photomask inspection system and teach the use of a laser source during an inspection illumination; however, they also disclose that the laser use din the inspection system can be used for a lithographic system. See column4+, for instance. It is also noted that the process of inspection a (photo)mask prior a process of lithography is referred to in the system provided by Emery et al Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize the pulsed laser provided by Partlo et al in an inspection process in the system of Biegen as suggested by Emery et al for the purpose of reducing the time and the cost.

6. Claims 8-9 and 15, as best as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegen in view of Partlo et al and Emery et al as applied to claim 6 above, and further in view of Ligten et al (U.S. Patent No. 3,490,827, of record).

The combined product provided by Biegen , Partlo et al and Emery et al as described above does not clearly state the formation of the diffuser. However, the use of a diffuser in the form of a holographical element is known to one skilled in the art as can be seen in the system for speckle reduction provided by Ligten et al. See columns 6-7

and figs. 2A, 2D, for example. Regard to the feature relating to the rotation speed of the diffuser as claimed in each of claims 9 and 15, such a rotation speed with at least a magnitude as claimed is an obvious matter within the level of one skilled in the art because 1) one skilled in the art will recognize that (s)he should adjust the rotation speed of the diffuser to a suitable speed which warrant the optimal result/quality of the image to be observed; and 2) the claim fails to provide a positively limitations for the rotation speed of the diffuser (see the rejection of the claim(s) under 35 USC 112 set forth in this Office action). Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize the diffuser with structure as provided by Ligten et al in the inspecting system of Biegen, Partlo et al and Emery et al for the purpose of improving the image quality and speckle reduction.

7. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegen in view of Partlo et al and Emery et al as applied to claim 6 above, and further in view of Oohashi et al (U.S. Patent No. 6,078,393, of record).

The combined product as provided by Biegen, Partlo et al and Emery et al does not clearly state that the wavelength used in the illuminating process has a wavelength of 193 nm or 248 nm .... However, the use of pulsed laser having such a wavelength in an inspection system is known to one skilled in the art as can be seen in the inspecting system provided by Oohashi et al. In particular, Oohashi et al disclose an inspecting system having a laser module for providing a pulsed laser ray which is guided to a diffusing element rotatable about the illuminating light path for the purpose of eliminating speckle problems, and a sensor which can be a UV camera for detecting light from the

objected to be illuminated. Regard to the wavelength used in the pulsed laser, in column 5, for example, the wavelength is 193 nm or 248 nm. Thus, it would have been obvious utilize the pulsed laser having wavelength of either 193 nm or 248 nm as suggested by Oohashi et al for the purpose of inspecting a semiconductor objects.

Conclusion

8. The additional references are cited as of interest in that each discloses the use of ultraviolet laser in an inspection system.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (703) 308-4814. However, Starting from Jan. 21, 2004, applicant should contact the examiner

at his new telephone number of (571) 272-2316 due to the change of his office to a new location. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on (703) 305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

Thong Q. Nguyen
Primary Examiner
Art Unit 2872

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